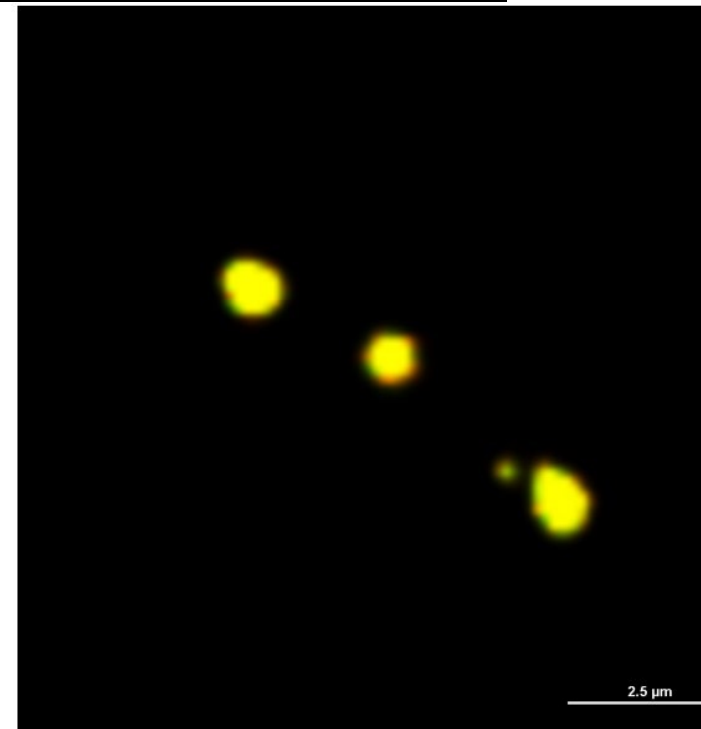
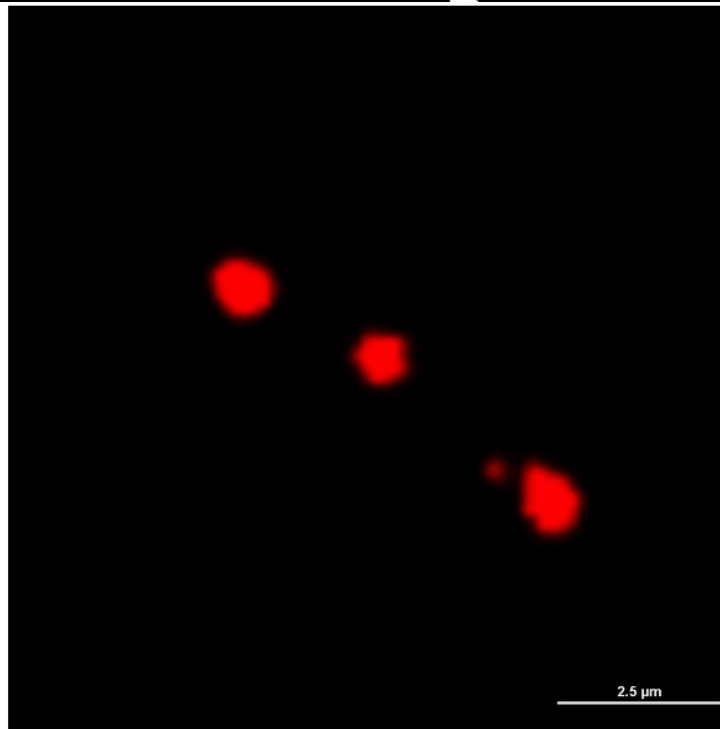
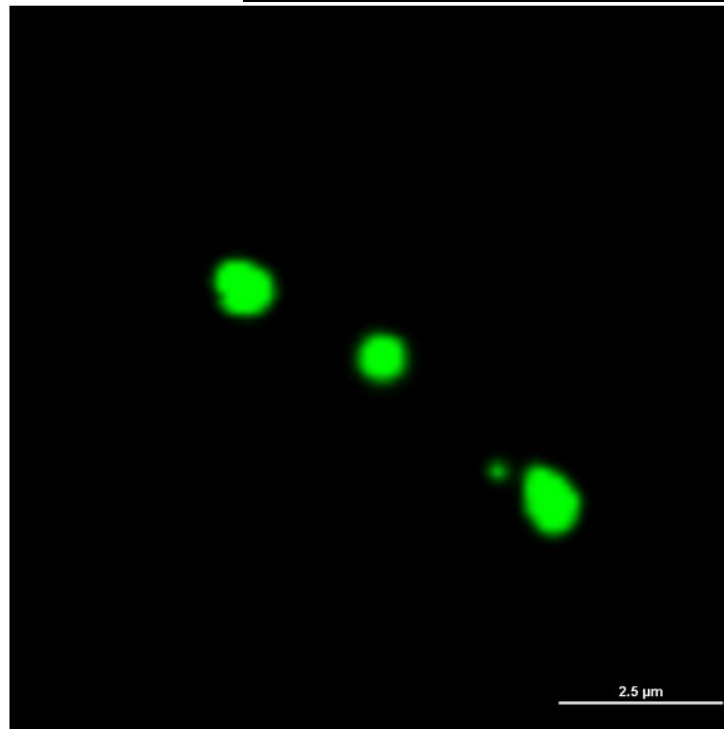


DNA Replication-2

---Extensions

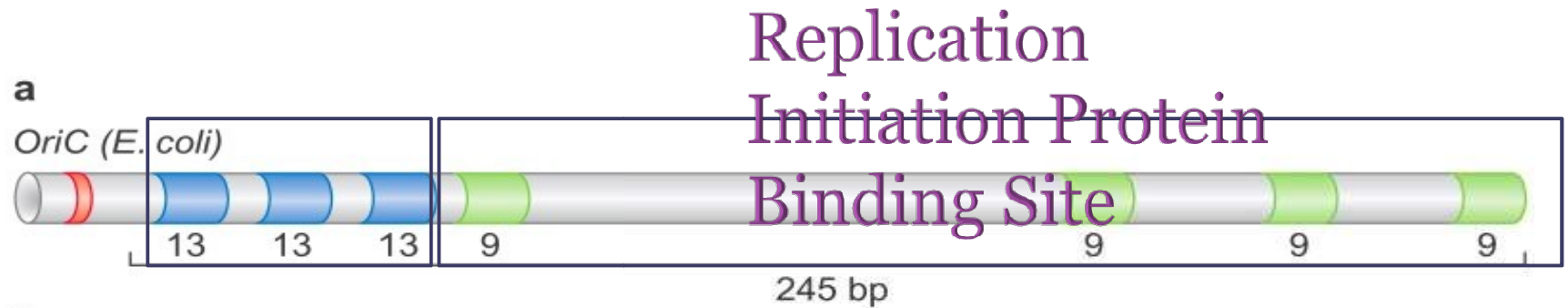
By Nanjing_NFLS

Tsingh

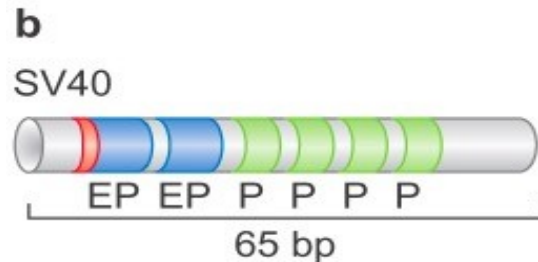


Origin (DNA replication start site)

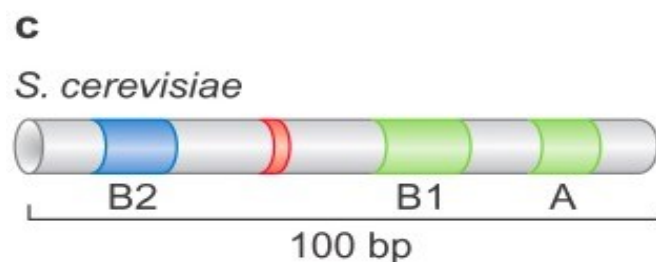
E.coli



monkey vacuolar
S 40



brewer's yeast



Replicon:

A fragment of DNA that starts from a single DNA replication starting point and is eventually completed by a replication fork starting from that starting point. The individual units of DNA in which replication occurs are called replicons.

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In *E. coli*, genome replication initiates at one single locus, *oriC*. Formation of DnaA protein filaments on DnaA boxes within *oriC* accurately regulates replication-bubble opening and subsequent helicase loading [3]. Here, we managed to block DnaA binding, mainly based on competition of CRISPR/dCas9 to the arrays of DnaA boxes (Apart from this, we also explored the effect of blocking other regions) [4]. See our [Design page](#) for more detailed introduction.

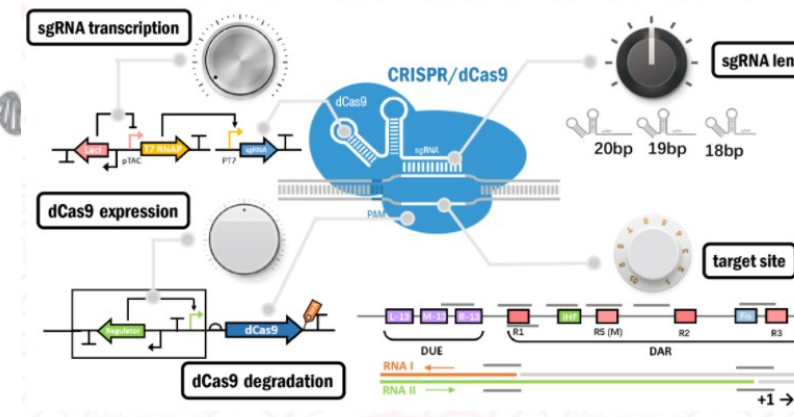
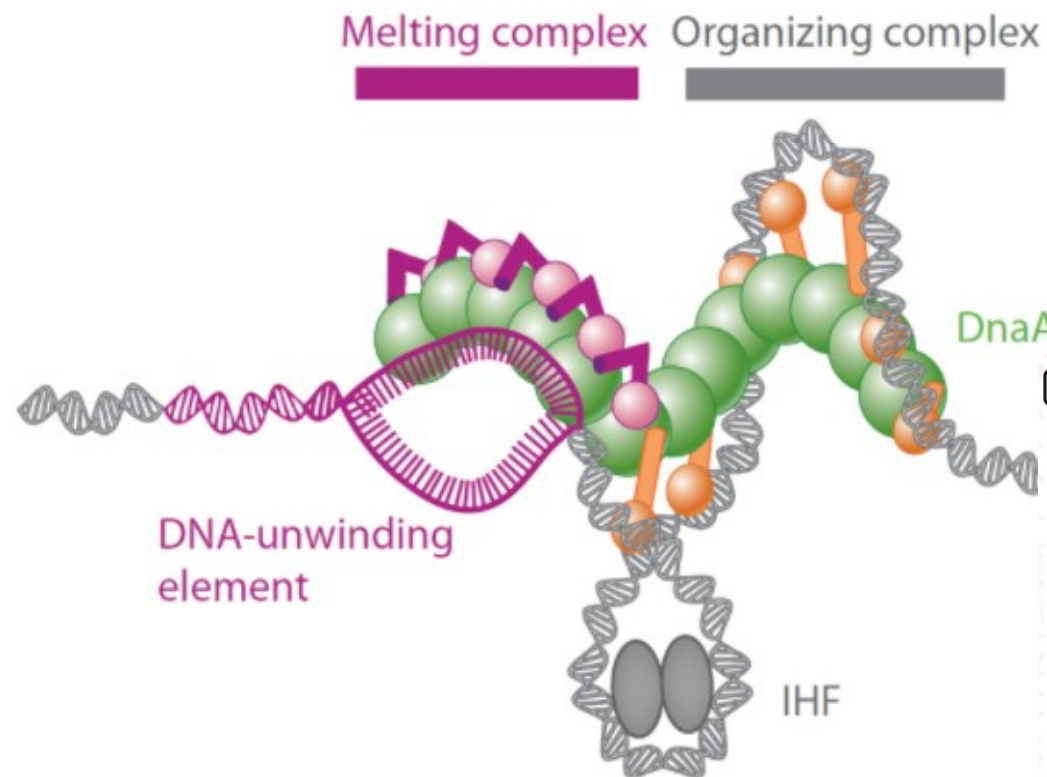
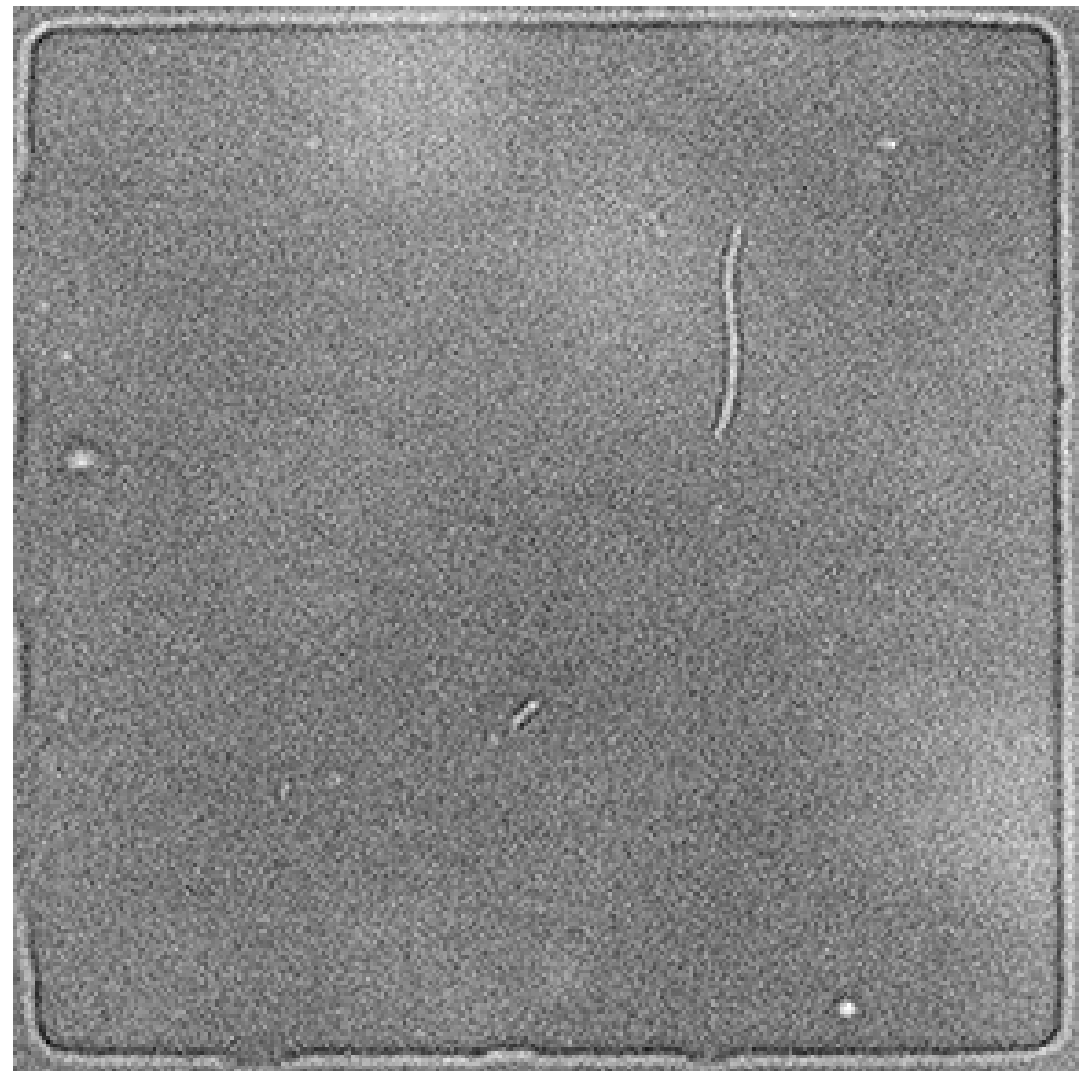
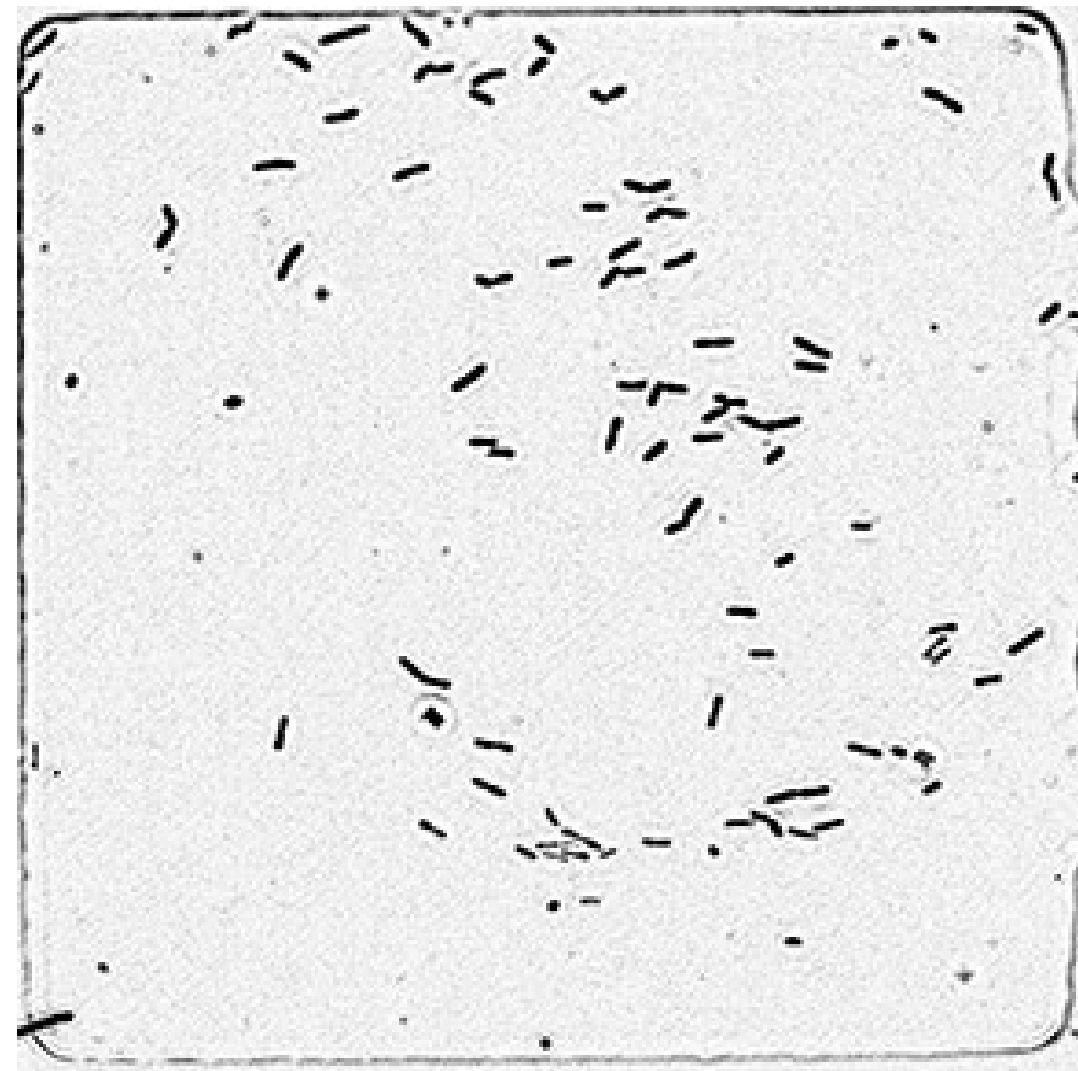
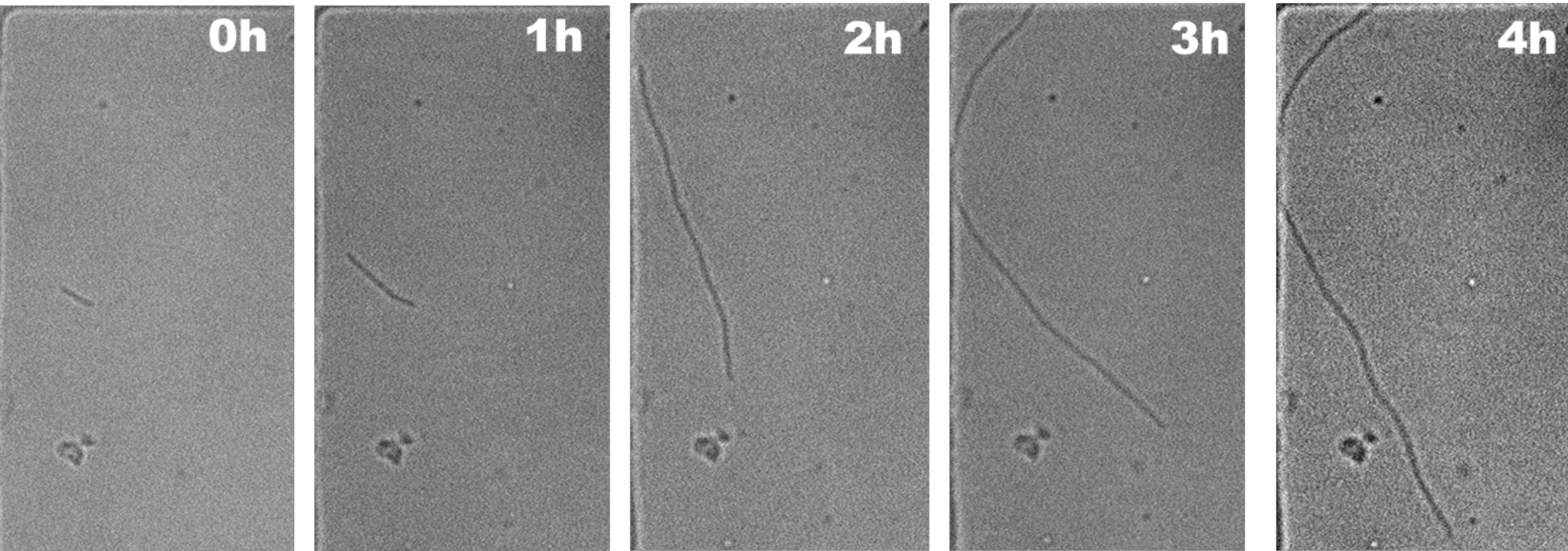


Figure 3. Multiple inputs are incorporated into our core design to achieve tunability.

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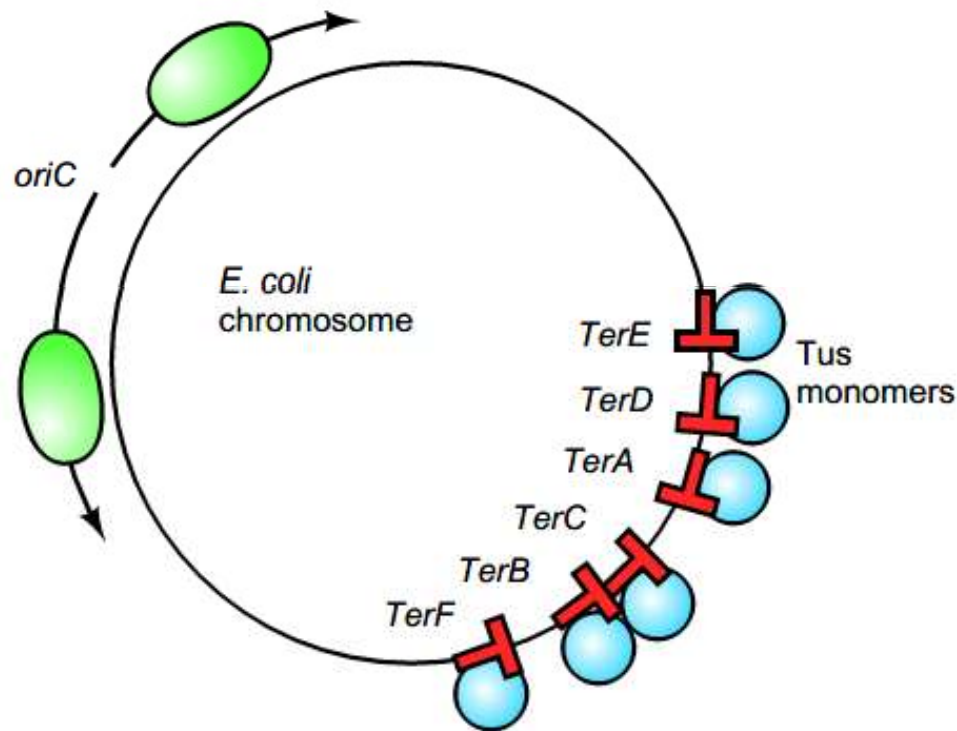


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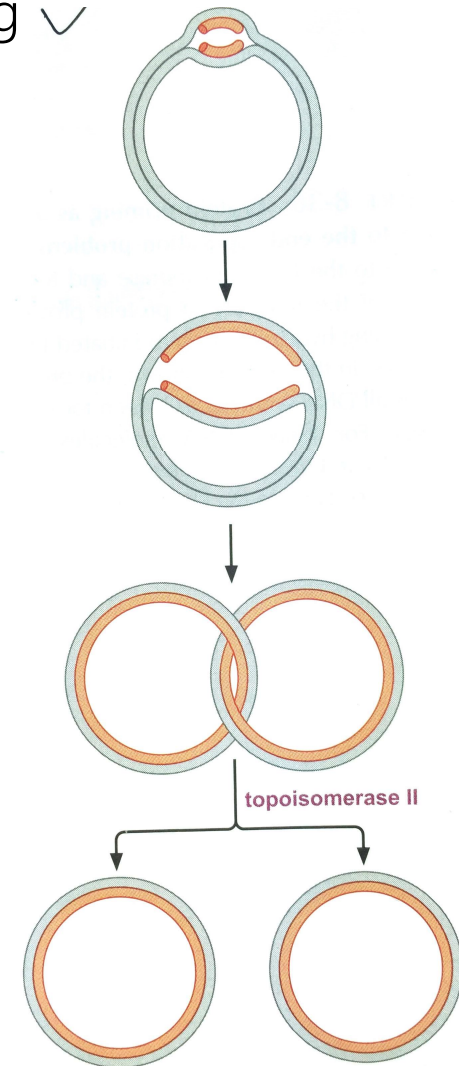


End of DNA replication - prokaryotes

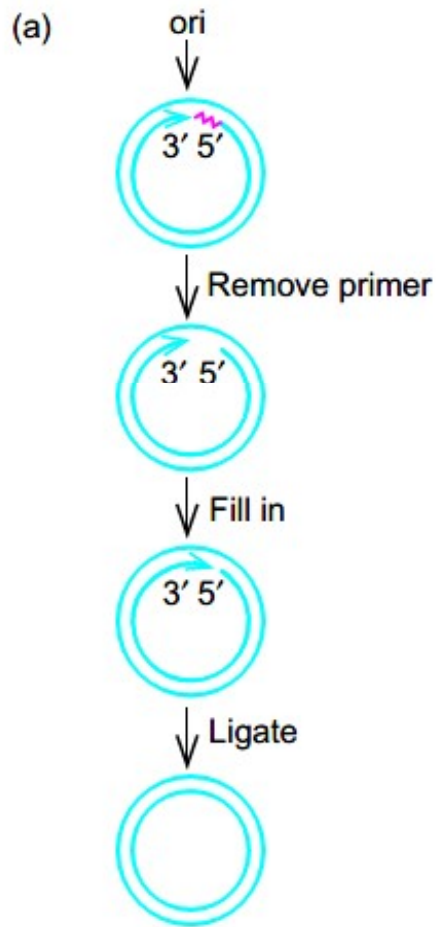
more complex and more interesting ✓



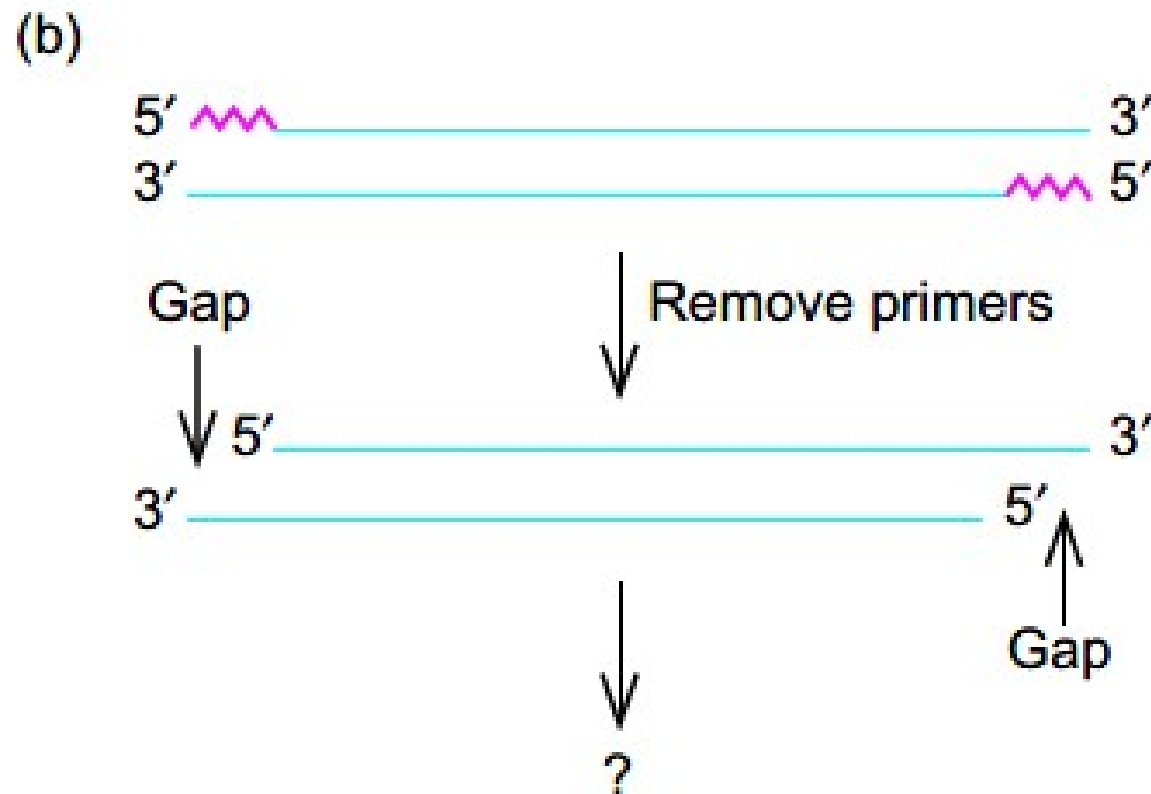
The termination of replication of prokaryotes is prone to various kinds of entanglement due to their ring-like nature, thus requiring topoisomerases to adjust their conformation.



End of DNA replication - eukaryote

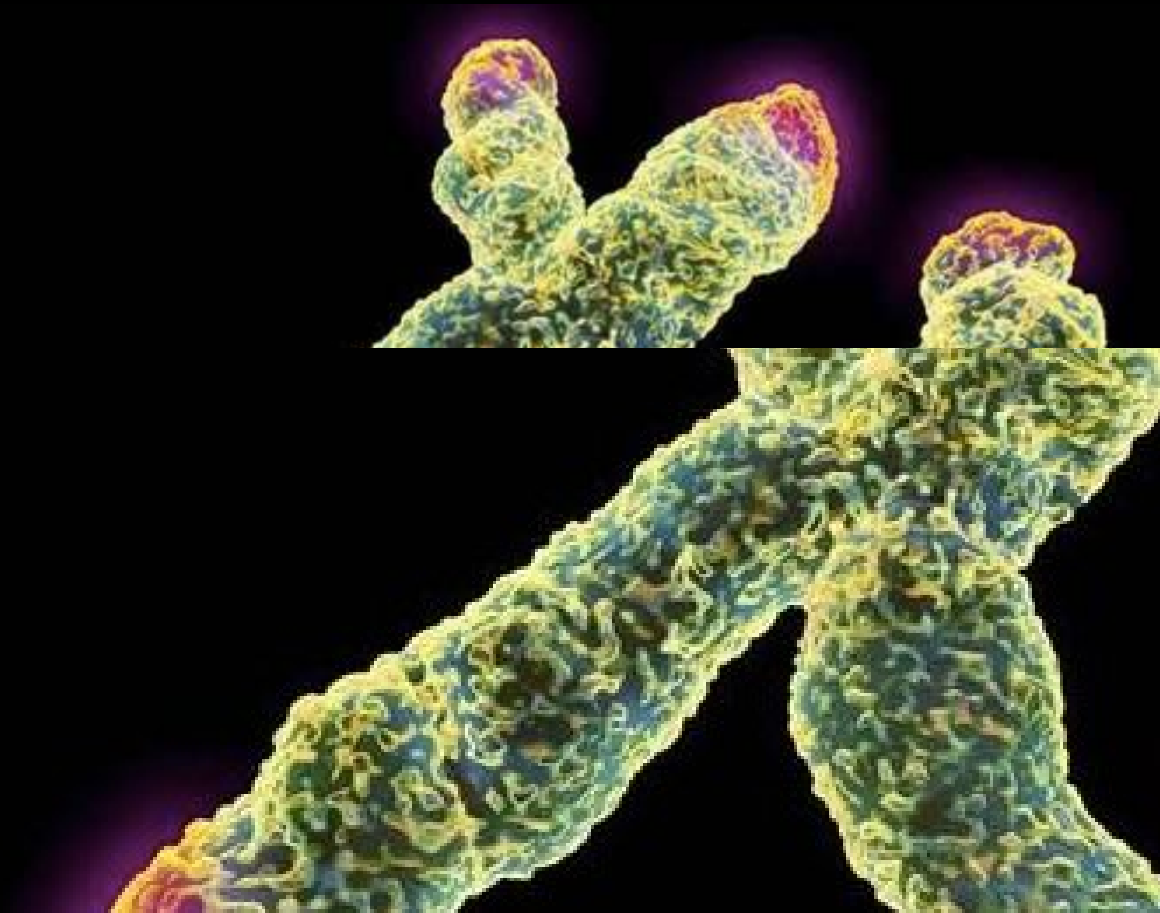


cyclic DNA



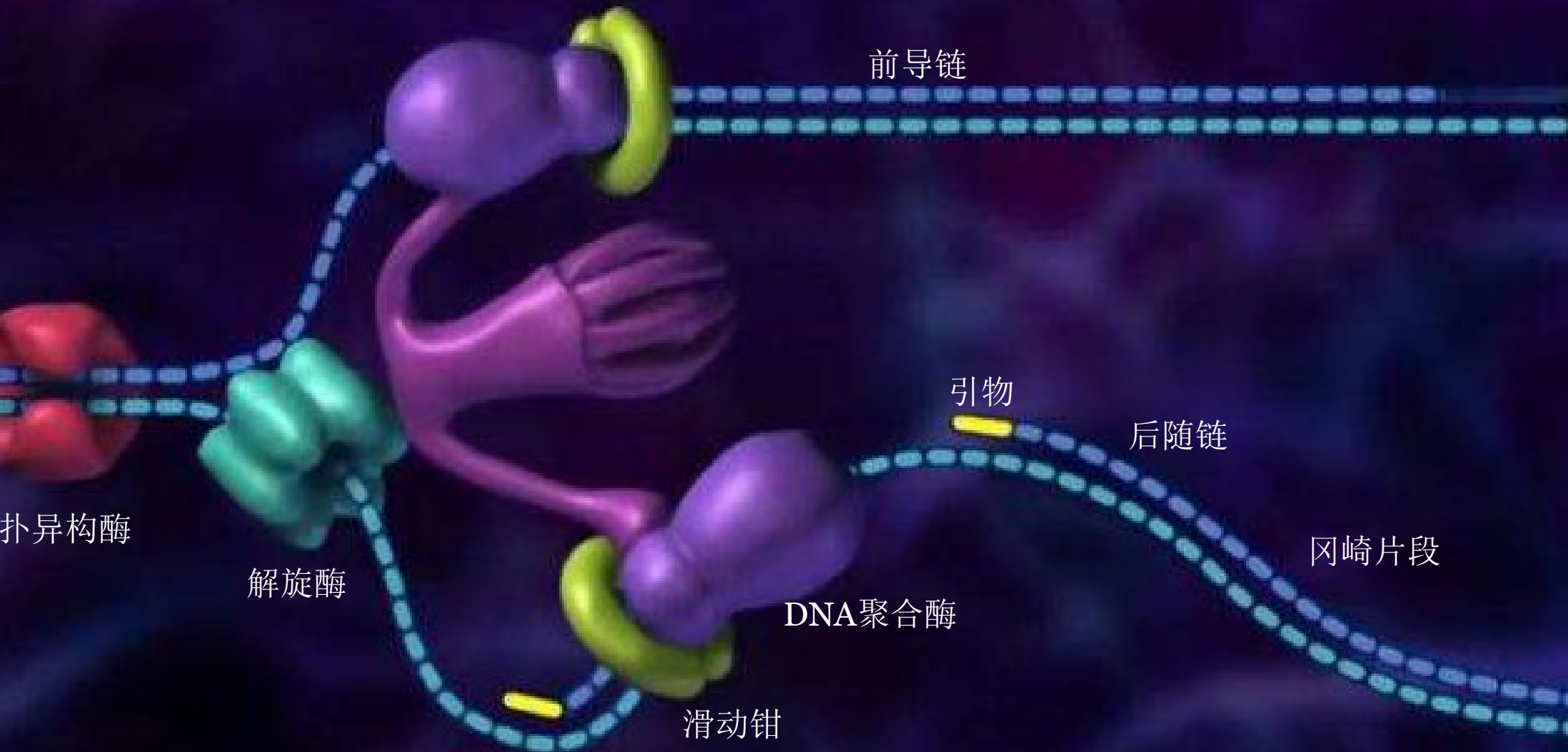
The "end cryptic problem" of linked DNA.

Extended knowledge: telomeres



Telomere: A repetitive characteristic sequence at the end of a chromosome. Used to protect chromosome ends from shortening due to duplication, from degradation by various enzymes, and from integrating with each other.

Extended knowledge: Okazaki clips





THANKS.